

# **Application of a Distance Learning Evaluation Plan to Data Skills Online**

*Prepared For:*

**The Health Resources and Services Administration  
(HRSA)**

*Prepared By:*

**The Lewin Group, Inc.**

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## **I. INTRODUCTION**

This is the second of two documents prepared by The Lewin Group to assist the Health Resources and Services Administration (HRSA) in better understanding how distance learning approaches to continuing education and professional training contribute to its mission and programmatic goals. In the first document, entitled “Preliminary Evaluation Approach for HRSA Continuing Education and Training Programs with Distance Learning,” The Lewin Group (Lewin) developed a distance learning evaluation framework grounded in theoretical literature. In the current document, Lewin demonstrates how this framework can be applied to a specific distance learning training program, Data Skills Online, as part of an Maternal and Child Health Bureau (MCHB) - initiated evaluation that targets training objectives and components of Data Skills Online that relate to distance learning.

### **A. Review of Proposed Evaluation Framework for Continuing Education and Training Programs that Incorporate Distance Learning Components**

Lewin proposed an evaluation framework that allows for critical assessment of continuing education and training program design, implementation, and outcomes that range from individual participant learning to attainment of programmatic, organizational, HRSA Bureau- and Office-specific and/or HRSA-wide goals and objectives. The proposed approach enables HRSA to address three sets of research questions in evaluating its continuing education and training programs that incorporate distance learning components. Conceptually, these three questions can be mapped across three levels of evaluation, such that each set of questions represents a distinct evaluation level.

1. What are the characteristics of the distance learning design embedded in continuing education or training programs? (Level One – Program Assessment/Profile)
2. How are the programs implemented? What did the programs produce using distance learning? (Level Two – Process Evaluation)
3. What did the programs achieve relative to their goals? How do distance learning activities in continuing education and training programs relate to the grantee organization, sponsoring Bureau or Office or HRSA-wide goals? (Level Three – Outcome Evaluation)

The first level of evaluation provides a comprehensive profile of program design characteristics. For programs, this provides the context in which learner reactions and outcomes can be interpreted and serves as a critical quality improvement mechanism. When reported to HRSA, the program profile enables HRSA to categorize and track distance learning activities as well as replicate successful distance learning techniques. Programmatic description also facilitates cross-program analysis by MCHB or HRSA, as well as the advancement of research into factors that contribute to effective distance learning training and continuing education programs.

Level Two of the evaluation is a process evaluation aimed at understanding how distance learning programs are implemented from learner and program perspectives. Barriers and facilitators to reaching target populations and implementing the distance learning training program can be identified, tracked over time, and addressed. In addition, the process evaluation

provides an initial assessment of program impact as well as additional contextual information to facilitate interpretation of both learner- and program-focused outcome evaluations. The third level of the evaluation is outcome-focused and examines the effectiveness of distance learning continuing education and training programs in terms of producing changes in the learner, program, sponsoring Bureau or Office, and HRSA.

Depending on the evaluation intent and resources available, HRSA could choose to implement any of the three levels as a stand-alone evaluation or implement any combination of the three levels, as appropriate.

## **B. Description of Data Skills Online**

Data Skills Online is a web-based, self-instructional training program targeting public health professionals at state and local levels. Its overarching purpose is to help public health professionals develop the technological and analytic skills necessary to perform quantitative and qualitative data collection and analysis on the job. In this way, Data Skills Online seeks to address MCHB goals of assuring the highest quality of care through the development of data monitoring and evaluation tools and a well-trained workforce. The program is offered free of charge to its online users, is operated by the University of North Carolina's School of Public Health and is funded by HRSA's MCHB.

MCHB's support for the Data Skills Online program is intended to increase access to training and build upon the experience of previous MCHB-funded distance learning programs. One such program is Dataspeak, a monthly live webcast designed to provide the maternal and child health community with opportunities to apply analytic skills on-the-job by presenting current information on important public health research findings and policy issues. Based on the experience of Dataspeak, MCHB learned that technical or analytic topics can be successfully taught via the web. In addition, training on the web brings people of similar backgrounds online together without requiring that they travel.

Program materials on its website characterize Data Skills Online as a "Maternal and Child Health Toolbox" currently consisting of five analytic and four technical instructional courses that are self-paced and short (i.e., one to three hours). Each tool provides specific learning objectives and maternal/child health-related examples and self-test activities. Students are able to contact instructors via email. Data Skills Online also outlines the technical requirements for participating in its courses, including hardware and software specifications, and offers an online technical skills test for potential participants to ensure they have the recommended skills, computer system technology, and plug-ins prior to taking one of its online courses.

Data Skills Online's five *Analytic Tools* include:

- An Overview of Primary Data Collection Instruments
- Developing an Analysis Plan for a Quantitative Study
- Basics of Geographic Information Systems (GIS)
- Designing Questionnaires

- Using PRAMS Data to Report Title V Performance Measures

Data Skills Online's four *Technical Tools* include:

- Browser Basics and Searching
- Subscribing to a List
- Creating Spreadsheets in Microsoft Excel
- Web Design.

Data Skills Online project staff have developed an evaluation plan to facilitate project improvement and accountability, and to provide MCHB with useful information about how online training programs are designed, developed, and managed. The program's evaluation plan addresses each of Data Skills Online's four program objectives.<sup>1</sup> The first two program objectives are to develop self-instructional, web-based technical and analytic skills tools. The evaluation activity for these two objectives assesses whether or not target numbers of technical and analytic tools were developed by the proposed target dates. The third program objective is to obtain geographically and professionally diverse participation by public health professionals. To determine the program's success at achieving this goal, program staff plan to assess the effectiveness of promotional efforts and interview a small sample of learners about how technical/analytic tools might be improved. The final program objective is for learners to apply technical and analytic skills on-the-job. Data Skills Online staff plan to evaluate progress in reaching this goal by requesting that participants complete a short questionnaire at the end of each tool to describe how they plan to apply newly learned skills at work, and complete (via electronic mail) a follow-up survey six months after course completion to indicate whether and how they applied the technical/analytic skills on the job.

### **C. Overview of Data Skills Online Evaluation Plan**

The remainder of this document demonstrates how the proposed evaluation framework can be applied to Data Skills Online. Section II customizes the proposed research questions and the logical framework to Data Skills Online. Section III elaborates on the evaluation methodology in terms of variables measured, data collection methods and tools, and sampling issues. Data analysis across evaluation levels and data reporting considerations are described in Section IV. Section V highlights validity and reliability concerns.

## **II. APPLICATION OF RESEARCH QUESTIONS AND LOGICAL EVALUATION FRAMEWORK TO DATA SKILLS ONLINE**

Lewin has applied the proposed evaluation approach and framework to Data Skills Online, a grant-supported analytical and technical skills training program that incorporates distance

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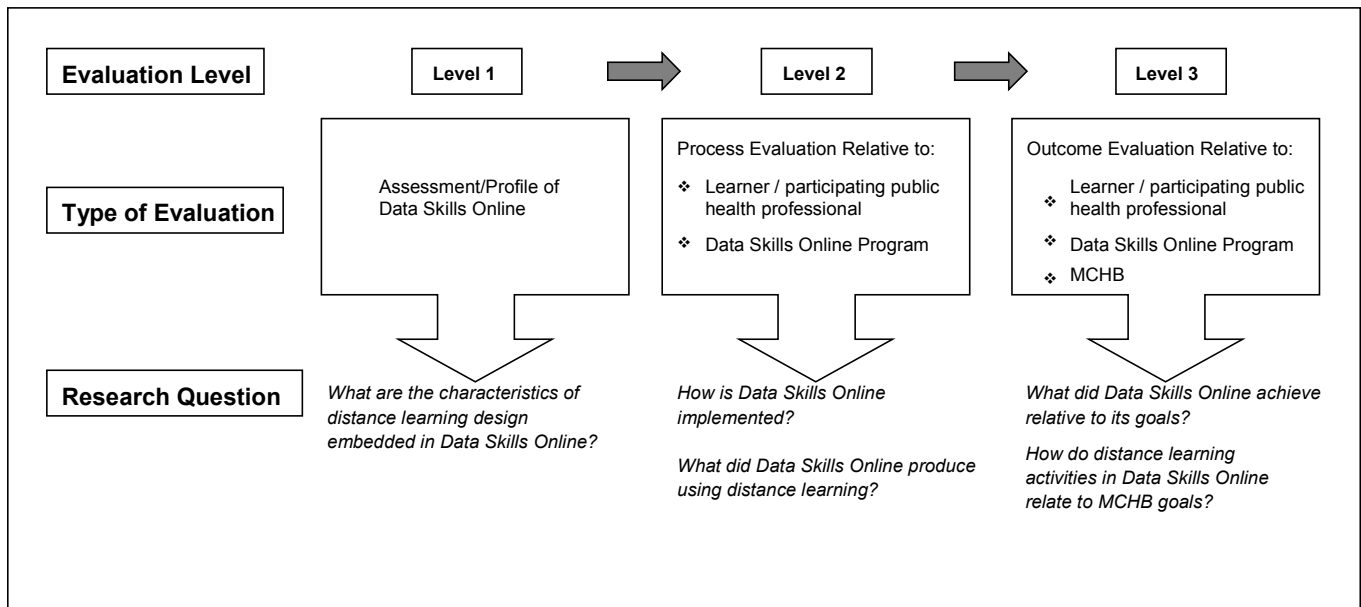
<sup>1</sup> For the purposes of this evaluation plan, Lewin tailored the methodology to address Data Skills Online's training objectives Three and Four, which specifically relate to distance learning components of Data Skills Online, and does not focus on objectives One and Two.

learning technologies. The proposed research questions can be readily tailored to Data Skills Online as well as other HRSA-supported continuing education and training programs as follows:

- 1) What are the characteristics of the distance learning design embedded in Data Skills Online?
- 2) How is Data Skills Online being implemented? What has the Data Skills Online program generated or produced?
- 3) What did Data Skills Online achieve relative to its goals? How do distance learning activities in Data Skills Online relate to MCHB goals?

Exhibit 1 provides a graphic representation of the logical framework in which research questions are mapped across multiple evaluation levels. Answers to Research Question #1 inform the Level One evaluation, which will enable MCHB to gain a deeper understanding of how Data Skills Online was designed and whether particular attention was paid to design characteristics that are unique to distance learning. Research Questions #2 address information related to the Level Two process evaluation, which details how Data Skills Online is being implemented, including the effectiveness of technology (e.g., web, audio/video) developed to meet program objectives. Finally, answers to Research Questions #3 will capture learner outcomes and program achievements, and their contribution to attainment of MCHB goals. These questions are the basis for the Level Three outcome evaluation.

**Exhibit 1: Logical Framework  
Evaluation of MCHB's Data Skills Online Program**



### **III. EVALUATION METHODOLOGY**

The comprehensive evaluation plan operates across multiple levels, incorporates multiple methods, and targets training objectives and components of Data Skills Online that relate to distance learning. This section describes Lewin’s proposed evaluation measures (quantitative and qualitative), sampling options, and data collection methods for each level of the evaluation. Lewin recommends that data are collected from Data Skills Online program staff, individuals affiliated with program development or support, participants in the web-based tools, and MCHB project officers. Data analysis and reporting are described in detail in Section IV.

This section provides an extensive selection of potential items to include in electronic surveys, secondary data requests, and interview protocols for the evaluation of Data Skills Online. Appendices A through E are sample data collection tools that include specific items (chosen from the pool of potential questions listed in this section) proposed for inclusion in the Data Skills Online evaluation. In addition, the first Lewin report, “Preliminary Evaluation Approach for HRSA Continuing Education and Training Programs with Distance Learning,” contains additional items that do not apply directly to Data Skills Online, but could apply to other MCHB-supported continuing education or training programs that incorporate distance learning.

The Lewin evaluation plan incorporates the evaluation activities of Data Skills Online, building upon its existing efforts when appropriate, and highlighting possible areas of expansion beyond Data Skills Online’s current efforts. The evaluation data can be collected either by an evaluator supported directly through the Data Skills Online project, or an external MCHB-supported evaluation consultant.

#### **LEVEL ONE: PROGRAM ASSESSMENT/PROFILE**

The evaluation plan incorporates measures designed to generate an assessment profile for the Data Skills Online program. Lewin has included actual Data Skills Online data in response to evaluation questions, where appropriate given the availability of data from Data Skills Online project staff at the University of North Carolina at Chapel Hill.

##### **A. Measures**

Level One evaluation measures are descriptive indicators that provide an overall profile of the design and structure of the Data Skills Online training program and factors influencing design decisions. For the purposes of this evaluation plan, all Level One evaluation data are collected from Data Skills Online document reviews and program staff. Lewin recommends the following questions for inclusion in the program’s evaluation.

**QUESTION 1: How would you characterize the Data Skills Online program’s activity? (choose one) (definitions are provided below)**

- ☐ Structured learning: degree-earning education
- ☐ Structured learning: continuing education
- ☐ Structured learning: skills training
- ☐ Information dissemination
- ☐ Other: (please describe) \_\_\_\_\_



**Structured Learning:** The systematic acquisition of knowledge, skills, rules, concepts, and attitudes. Structured learning activities can be described as either Education- or Training-based:

- a) **Education:** The learning is incorporated into an educational curriculum, which can include the following:
  - **Degree earning:** Applies to instructional activities directed towards acquiring an academic degree.
  - **Continuing education:** Applies to instructional activities that grant credits based on participation.
- b) **Training:** Instructional efforts that focus on enhancing trainee professional development and capacity as well as furthering organizational goals.

**Information Dissemination:** Relatively unstructured instructional efforts focused on building awareness/knowledge or increasing familiarization around specific issues/topics.

**ANSWER:** Data Skills Online is a structured learning, training activity designed to enhance public health professionals' technical and analytical skills.

**QUESTION 2: Describe the nature of the Data Skills Online training activity.**

**ANSWER:** The Data Skills Online program provides opportunities for training in technical and analytical skills. Technical skills training emphasizes web design, Excel spreadsheets, browser basics and searching, and subscribing to a list. Analytical skills training focuses on geographic information systems, quantitative data tools, qualitative data collection/analysis tools, economic analysis tools, and other tools.

**QUESTION 3: What is the target audience for Data Skills Online?**

**ANSWER:** Data Skills Online is designed to train public health professional staff working at state, regional and local levels on maternal and child health issues, including Title V professionals, particularly social workers.

**QUESTION 4: What characteristics of the target audience were considered in designing Data Skills Online?**

**ANSWER:** Based on experiences with a previous MCHB-funded project (i.e., EDUSIT), the program designers recognized that heavy workloads and multiple time demands place constraints on the ability of public health professionals (the target audience) to participate in online training activities. Additionally, the program developer acknowledged that public health workers move in and out of the system at both state and local levels, making it difficult to build a cohesive training community. Accordingly, the Data Skills Online training program comprises short (i.e., one to three hours) independent, self-contained training modules that participants can complete at a convenient time and at their own pace. The program offers tools for users with different skill levels so that those new to the field and those with some general MCH experience can learn from the tools. Given the target audience of MCH professional public health workers, all exercises and materials relate to MCH populations and issues.

**QUESTION 5: What are the training goals and objectives of the Data Skills Online Program?**

**ANSWER:** The Data Skills Online program trains maternal and child public health professionals to use technical and analytic skills on the job, especially to facilitate the collection, use, evaluation and reporting of data. With the broad goal of strengthening the ability of MCH public health professionals to use data in decision making, the program identified two specific training objectives (i.e., included in its grant application):

- 1) Obtain geographically wide and professionally diverse participation in both the technology and analytic skills training, and
- 2) Document participants' application of program technology and analytic skills on the job.

The program more broadly strives to increase MCH health professionals' comfort and confidence in using computer software programs and the Internet, as well as in collecting, manipulating and interpreting data. With increased technical and analytic skills, health professionals could develop evidence-based strategies to meet the health needs of mothers and children. Another informal program goal is to increase the ability of public health professionals to complete the Maternal and Child Health (MCH) Block Grant Application, which was recently made available in electronic format.

**QUESTION 6: What delivery strategy does Data Skills Online employ?**

**ANSWER:** The program uses an asynchronous, self-paced delivery strategy whereby participants access the training via the Internet and complete the skills training independently. Prior to registration, potential participants can take an online technical skills test to ensure they have the recommended skills, computer system technology, and plug-ins necessary to take one of the online courses.

**QUESTION 7: What instructional methods and types of media does the program use?**

**ANSWER:** The program uses a menu-based format to guide participants through the registration and tool selection processes. Training associated with each tool can be completed at the convenience of participants. The training modules are approximately one to three hours of work. Opportunities for self-assessment are built into each of the technical and analytic tools, with quizzes that provide immediate feedback to the participant.

The program incorporates multiple media, including text, audio and video presentations. All of the Data Skills Online tools are designed in Web CT, a software package used as an instruction management system by the University of North Carolina's School of Public Health (the program's designer). Participants can request support from technical staff (i.e., to address questions related to software and hardware issues) or program instructors via email or telephone to address program-related questions.

**QUESTION 8: To what extent are the instructional methods aligned with the purpose and objectives?**

**ANSWER:** The program's instructional methods align with its purpose of increasing MCH health professionals' level of comfort in using the Internet and computer technology to build technical and analytic skills that focus on data collection, use, analysis and reporting. Data Skills Online is web-based, user-friendly with its menu format, and provides a self-assessment pre-test for participants to assess their ability to use the required software and hardware for implementing the technical and analytical tools. Opportunities for self-assessment are built into each of the technical and analytic tools, as well.

**QUESTION 9: What learning strategies were applied in developing the distance learning activity?**

**ANSWER:** Program designers based the technical/analytic tools on principles of adult learning (Knowles, 1993). The Data Skills Online tools reflect current theory in skills training, including the presence of instructional principles that promote transfer of training to the work setting such as:

- Providing opportunities for practice, with good examples demonstrated
- Breaking skills into small pieces to be mastered, to build confidence
- Teaching skills that are relevant to the workplace of most eligible participants
- Ensuring that skills are within the computing and technical capabilities of most eligible participants and their organizations
- Situating the skills in problems and realistic examples so students will recognize situations in which to apply them and see the utility of doing so
- Helping students anticipate and counteract barriers to completing skills tools.

**B. Sampling Plan and Data Collection**

The Level One evaluation requires the collection of programmatic design and background information.<sup>2</sup> A sampling plan is not appropriate for Level One Evaluation; the sample is comprised of the individual distance learning program being evaluated, in this case Data Skills Online. Level One data should be collected from program staff, including both technical and content experts active in the design, development, and coordination of Data Skills Online. These program staff and other individuals affiliated with program development and/or design can provide perspective on factors that were considered, the rationale grounding particular design decisions, and other contextual variables.

MCHB could incorporate the collection of program profile information into the Request for Proposal (RFP) process by requesting that grantees complete and submit a profile worksheet to supplement their grant applications. This worksheet should include Level One questions selected from the pool of those listed previously. Program staff could complete the questionnaire

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<sup>2</sup> For a three-year grant (such as that awarded to the University of North Carolina at Chapel Hill's Department of Maternal and Child Health for its Data Skills Online program), Lewin assumes the first 18 months will be allocated to program planning and design, including developing the evaluation plan and instruments. The proposed timeline can be adjusted to align with the grant period time specifications and resource availability.

again six months into the program design/development phase, and as part of the annual progress report submitted to MCHB thereafter through the end of the grant period. The six-month and subsequent annual questionnaires will provide profile updates to annotate changes to program design, and the rationale underlying such changes. This data collection process would allow MCHB to categorize, track and monitor the types of distance learning activities being funded, and to use the information to inform subsequent distance learning initiatives.

Alternatively, if the collection of program profile information was not built into the RFP process and/or grantee reporting requirements, MCHB project officers could extract information about design characteristics and the program development process from grant applications and program descriptions. Project officers could clarify or verify the accuracy of program documents via discussions with Data Skills Online program staff.

## **LEVEL TWO: PROCESS EVALUATION**

The following process evaluation measures are designed to assess the implementation of Data Skills Online, and to provide insight into factors that might facilitate or thwart program efforts to reach intended target audiences or implement specific program activities. Lewin has developed process evaluation measures to capture both learner and program (i.e., Data Skills Online) perspectives, as each offers insight into program effectiveness. Where appropriate the evaluation includes items to capture information relevant to the MCHB perspective.

### **A. Measures**

The process evaluation measures are organized by ten fundamental assessment questions, with several focused items designed to address the fundamental questions. Lewin proposes incorporating the full spectrum of program and MCHB-focused items in an evaluation of Data Skills Online. However, given time demands on the learner and the difficulty in obtaining high survey response rates (particularly for lengthy data collection instruments), Lewin recognizes that administering all of the questions proposed may not be practical or feasible. Therefore, Lewin recommends that the evaluation include at least a subset of learner-based items that should be asked of learners after their completion of each Data Skills Online tool. Items recommended for inclusion in the learner-focused post-tool evaluation survey and three month follow-up survey are noted by “**Recommended Item**” in parentheses following the item. Appendices A and B present the priority questions for the learner post-tool survey and the follow-up survey, respectively.

To further facilitate interpretation of the measures, the data collection methodology (i.e., post-tool learner survey, Data Skills Online questionnaire/interview, secondary data requests from Data Skills Online databases) also is indicated in parentheses following each measure.

### **QUESTION 1: What are learner reasons for completing Data Skills Online tools?**

*Learner Perspective:*

- What was your primary reason for completing this Data Skills Online tool? (give categories to check – job requirement, CEU, voluntary) (learner post-tool survey)

- Why did you choose web-learning over a traditional learning environment? (**Recommended Item:** learner post-tool survey)
- How did you hear about Data Skills Online? (e.g., MCH colleague, MCHB, Internet surfing) (learner post-tool survey)

*Data Skills Online Program Perspective:* N/A

*MCHB Project Officer Perspective:* N/A

**QUESTION 2: Was program content and information presented in Data Skills Online useful, given the program goals and target audience?**

*Learner Perspective:*

- Was the content of the training tool relevant for you as a public health professional? (Yes/No; Why or why not?) (learner post-tool survey)
- To what extent was program content at the appropriate skill level for you? (4-point Likert scale) (**Recommended Item:** learner post-tool survey)

*Data Skills Online Program Perspective:* N/A

*MCHB Project Officer Perspective:* N/A

**QUESTION 3: Was the information presented in Data Skills Online aligned with the program (or tool) description?**

*Learner Perspective:*

- Did you review online tool descriptions? (Yes/No; Why or why not?) (**Recommended Item:** learner post-tool survey)
- If yes, to what extent did the information presented in this training align with the description of Data Skills Online tools that you reviewed? (4-point Likert scale) (**Recommended Item:** learner post-tool survey)

*Data Skills Online Program Perspective:*

- Number and type of phone/email requests – focusing on tool descriptions – posed to instructors during a six-month interval. (secondary data request)

*MCHB Project Officer Perspective:* N/A

**QUESTION 4: Were the activities/examples/exercises/demos available on Data Skills Online effective teaching methods?**

*Learner Perspective:*

- Were instructions describing the tool's activities/examples/demos clear? (Yes/No; Why or why not?) (learner post-tool survey)

- How effective were the tool's activities, examples, exercises, and/or demos in helping you learn? (4-point Likert scale) (**Recommended Item:** learner post-tool survey)
- To what extent was the information in this tool presented clearly? (4-point Likert scale) (learner post-tool survey)
- To what extent was the information in this tool presented in a logical order? (4-point Likert scale) (learner post-tool survey)

*Data Skills Online Program Perspective:*

- Number and type of phone/email requests – pertaining to the program's instructions and content – of instructors during a six-month interval. (secondary data request)
- Based on analysis of email and telephone requests for instructional support, to what extent do you feel the tool's instructions are clear? (4-point Likert) (Data Skills Online staff questionnaire/interview)

*MCHB Project Officer Perspective: N/A*

**QUESTION 5: Was the distance learning technology employed in Data Skills Online effective, given the program goals and target audience?**

*Learner Perspective:*

- Did having this technical/analytical training tool available on the Internet provide you with a training opportunity you might not have participated in otherwise? (Yes/No; Why or why not?) (**Recommended Item:** learner post-tool survey)
- Do you feel that the Internet is an effective vehicle for learning technical/analytic skills? (Yes/No; Why or why not?) (learner post-tool survey)
- Rate the ease/difficulty of using the Internet for training with this technical/analytic tool. (4-point Likert scale) (learner post-tool survey)

*Data Skills Online Program Perspective:*

- Number and type of technical assistance phone/email requests focused on accessing the Internet or the program's tools during a six-month interval. (secondary data request)

*MCHB Project Officer Perspective: N/A*

**QUESTION 6: Was the use of distance learning delivery strategies and modalities effective?**

*Learner Perspective:*

- Did you access Technical Support webpages? (Yes/No; Why or why not?) (learner post-tool survey)
  - If yes, how effective were the Technical Support webpages in helping you navigate Data Skills Online tools? (4-point Likert scale) (learner post-tool survey)

- How easy/difficult is it to navigate through Data Skills Online tools? (4-point Likert scale) (post-tool learner survey)
- How satisfied were you with being able to work independently, without live interaction with other participants or the instructor? (4-point Likert scale) (**Recommended Item:** learner post-tool survey)
- To what extent did you find that the menu format incorporated in Data Skills Online was easy to use? (4-point Likert scale) (learner post-tool survey)
- Did the use of graphics/visuals (e.g., demos, visual examples) make the course content easier to understand? (Yes/No; Why or why not?) (learner post-tool survey)

*Data Skills Online Program Perspective:*

- Number of hits to the online Technical Support webpages (secondary data request)
- Number of email/voicemail requests for technical help in navigating and completing the tools, from a technical perspective, during a six-month interval. (secondary data request/cataloging)

*MCHB Project Officer Perspective: N/A*

**QUESTION 7: Was the target audience reached?**

*Learner Perspective: N/A*

*Data Skills Online Program Perspective:*

- Compilation of descriptive statistics on learner professional, organizational, and geographical background. (secondary data request)
- Percent of target audience reached by different categories. (secondary data request)
- What factors facilitated reaching the target audience? (e.g., specific promotional efforts) (Data Skills Online staff questionnaire/interview)
- What factors got in the way of reaching the target audience? (Data Skills Online staff questionnaire/interview)

*MCHB Project Officer Perspective: N/A*

**QUESTION 8: Were the appropriate staff and resources available for the distance learning activity?**

*Learner Perspective:*

- Were you aware of the following support services? (Yes/No) (learner post-tool survey)
  - Technical support (via email or voicemail)
  - Instructor support (via email or voicemail)
  - Online Technical Support Webpage

- Did you use the following support services? (Yes/No; Why or why not?) If yes, please rate the adequacy of support services. (4-point Likert scale) (learner post-tool survey)
  - Technical support (via email or voicemail)
  - Instructor support (via email or voicemail)
  - Online Technical Support Webpage

*Data Skills Online Program Perspective:*

- Please rate the adequacy of support services. (4-point Likert scale) (Data Skills Online staff questionnaire/interview)
  - Technical support (via email or voicemail)
  - Instructor support (via email or voicemail)
  - Online Technical Support Webpage
- Rate the adequacy of non-staff resources (e.g., WebCT, other software or equipment). (4-point Likert scale) (Data Skills Online staff questionnaire/interview)

*MCHB Project Officer Perspective: N/A*

**QUESTION 9: What are the participation trends?**

*Learner Perspective:*

- How many Data Skills Online tools have you completed over the past three months? (**Recommended Item:** learner 3-month follow-up survey)

*Data Skills Online Program Perspective:*

- Type and number of participants responding to a mid-tool survey, indicating completion of at least half of the tool. (secondary data request)
- Type and number of participants responding to an end-of-tool completion item, indicating completion of the entire tool. (secondary data request)
- Total number of participants over time, by tool, as assessed via the end-of-tool completion item.<sup>3</sup> (secondary data request)
- Type of participants over time, by tool, as assessed via the end-of-tool survey completion item and participants' demographic information (from Data Skills Online registration form). (secondary data request)
- Percentage of learners who complete a Data Skills Online tool (as determined via the end-of-tool completion item) out of the total number who register. (secondary data request)
- Number of tools completed per participant in a three-month period. (secondary data request)

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<sup>3</sup> For programs that do not have an end-of-tool completion item, such as Data Skills Online, the mid-tool item may be substituted.



*MCHB Project Officer Perspective: N/A*

**QUESTION 10: Did actual program implementation align with program design?**

*Learner Perspective: N/A*

*Data Skills Online Program Perspective:*

- To what extent did program implementation align with initial program design? (4-point Likert Scale) Describe discrepancies. (Data Skills Online staff questionnaire/interview)
- What factors facilitated program implementation? (Data Skills Online staff questionnaire/interview)
- What factors got in the way of program implementation? (Data Skills Online staff questionnaire/interview)

*MCHB Project Officer Perspective:*

- To what extent did program implementation align with initial program design (as described in the grantee application). (4-point Likert scale) Describe discrepancies.

**B. Sampling and Data Collection Methods**

Sampling and data collection issues for levels Two and Three of the evaluation plan are discussed jointly at the end of the *Level Three: Outcome Evaluation* section because these levels share common sampling and data collection methodologies.

**LEVEL THREE: OUTCOME EVALUATION**

The outcome evaluation measures help determine the effectiveness of specific Data Skills Online tools and the overall program from both the learner's and program's perspectives as well as the perspective of the sponsoring Bureau.

**A. Measures**

Outcome measures assessing change in the learner are divided into three types: (1) learner reactions; (2) learning (e.g., acquisition of knowledge/skills); and (3) behavior change. Program-focused outcomes address change in the capacity of the organization housing Data Skills Online. MCHB measures study the extent to which Data Skills Online influenced broader goals within MCHB.

**Learner-focused Outcomes**

Outcomes focusing on the learner target (1) learners' affective experiences with Data Skills Online tools, (2) their self-report assessment of the learning that occurred, and (3) their reports of expected and realized changes in their on-the-job behavior, targeting the transference of learning from the training environment to the work environment. The measures are designed for learners

who have completed one or more of the Data Skills Online tools. Items addressing learner-focused outcomes do not apply to Data Skills Online or MCHB staff.

The evaluation plan identifies several measures within each of these learner-focused outcome areas. All of these items contribute to the assessment of learner-focused outcomes, and are provided for the benefit of MCHB's and Data Skills Online's consideration. However, as described in the *Process Evaluation* section, Lewin has recommended a subset of items (identified as "**Recommended Items**") to be included in the survey instrument to minimize learner response burden and attempt to maximize post-tool survey response rates.

### **(1) Learner Reactions**

#### **QUESTION 1: Were learners satisfied with their experience in Data Skills Online?**

- Overall, how would you rate your satisfaction with the technical/analytic tool? (4-point Likert scale) (learner post-tool survey)
- How likely are you to recommend this technical/analytic tool to a colleague? (4-point Likert scale) (**Recommended Item**: learner post-tool survey)
- Have you recommended the Data Skills Online program to a colleague/friend? (Yes/No; Why or why not?) (**Recommended Item**: learner 3-month follow-up survey)
- How would you rate your satisfaction with the Data Skills Online program, in general? (4-point Likert scale) (learner post-tool survey)
- How likely are you to recommend the Data Skills Online program, in general, to a colleague? (Yes/No; Why or why not?) (learner post-tool survey)

#### **QUESTION 2: Have Data Skills Online tools helped increase learner comfort with technology?**

- Has this technical/analytic tool increased your level of comfort in using the Internet for training courses? (Yes/No; Why or why not?) (learner post-tool survey)
- Has this technical/analytic tool increased your level of comfort in using, interpreting, analyzing or reporting MCH data? (Yes/No; Why or why not?) (*This question could replace a related Data Skills Online evaluation question<sup>4</sup>*) (**Recommended Item**: learner post-tool survey)

### **(2) Measures of Learning**

#### **QUESTION 3: Have Data Skills Online tools increased learner knowledge and abilities?**

##### *Self-Report Measures*

- To what extent do you feel that participation in the course helped develop or enhance your technical/analytical skills? (4-point Likert scale) (*This question could replace a*

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<sup>4</sup> The tool improved my confidence in using the skill (Yes/No)

*related Data Skills Online evaluation question<sup>5</sup>*) (**Recommended Item:** learner post-tool survey)

- To what extent do you feel you are better equipped/prepared to do your work because of the training you received in Data Skills Online? (4-point Likert scale) (learner post-tool survey)

#### *Objective Measures*

- Scores on the quizzes and activities completed during the tools. (secondary data request)

### **(3) Measures of Behavior Change**

#### **QUESTION 4: How does Data Skills Online participation contribute to behavior change?**

##### *Expected Behavior Change*

- During the next 12 months, how do you plan to use the skills taught on your job? (Mark all that apply) (*This question is taken from the existing Data Skills Online evaluation questionnaire that immediately follows course completion*). (**Recommended Item:** learner post-tool survey)
  - To use online data sources
  - To assess needs
  - To prepare grant proposals
  - To enhance quality of primary data I collect
  - To prepare reports or presentations
  - To enhance my comprehension of professional journal articles
  - To join more professional listservs
  - Other, please describe:
  - I do not expect to use the skills in my job.

##### *Actual Behavior Change*

- Three months ago you completed the “(insert tool name)” tool from Data Skills Online. How have you used the skills that you learned within your work environment? Please mark all that apply. (**Recommended Item:** learner 3-month follow-up survey)
  - Use more online data sources
  - Conducted a needs assessment
  - Prepared a grant proposal
  - Implemented a program evaluation

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<sup>5</sup> This tool increased my knowledge (Yes/No)

- Enhanced the quality of primary data I collect
- Prepared reports or presentations
- Enhanced my ability to comprehend professional journals
- Joined more professional listservs.
- Other, please describe:
- I have not had the opportunity to use the skills in my job, but expect I will in the future.
- I do not expect to use the skills in my job

### **Program-focused Outcomes**

The evaluation incorporates several questions focusing on program-level outcomes of Data Skills Online to determine whether the Data Skills Online Program has experienced capacity changes over the course of the grant, and whether it has influenced the organization in which it is housed. The questions are designed to solicit information from Data Skills Online staff and individuals affiliated with program design and development. For the purposes of the current evaluation plan, the Program-focused Outcome measures will only target Data Skills Online program designers, developers and implementers; these measures do not target Data Skills Online learners or MCHB staff.

#### **QUESTION 5: Did development of the Data Skills Online program increase the capacity of UNC's School of Public Health, i.e., improve its ability to achieve its goals?**

- Since inception of Data Skills Online, has UNC's School of Public Health established any new collaborations or relationships with other departments or organizations that did not exist prior? (Data Skills Online staff questionnaire/interview)

#### **QUESTION 6: To what extent has Data Skills Online become institutionalized at UNC's School of Public Health?**

- Has Data Skills Online in part or as a whole been adopted by UNC's School of Public Health? (Data Skills Online staff questionnaire/interview)
- Has UNC's School of Public Health made changes to its policies that were influenced by Data Skills Online? (Data Skills Online staff questionnaire/interview)

#### **QUESTION 7: To what extent (and how) will Data Skills Online be sustained?**

- Does Data Skills Online have a plan for financial sustainability (e.g., additional funding secured, contractual agreements) after the MCHB funding period? If yes, please describe. (Data Skills Online staff questionnaire/interview)

**QUESTION 8: To what extent was Data Skills Online replicated, or are there plans for future replication?**

- Is there evidence of Data Skills Online replication? (Data Skills Online staff questionnaire/ interview)
- Does Data Skills Online have a plan for replication? (Data Skills Online staff questionnaire/ interview)
- Was there an MCHB expectation for replication? (Data Skills Online staff questionnaire/ interview)

**MCHB-related Outcomes**

The remaining outcome evaluation measures assess the Data Skills Online program outcomes that relate to MCHB's mission and goals. These data can provide insight into program successes and challenges to inform future MCHB initiatives. The evaluation includes individual items targeting the MCH learner, program staff, and MCHB project officer perspectives.<sup>6</sup>

**QUESTION 9: How does Data Skills Online contribute to the MCHB goal of assuring quality of care?**

*MCH Learner Perspective:*

- To what extent do you feel your participation in Data Skills Online has enhanced state-level capacity for utilizing data and information for the analysis, assessment, monitoring, and evaluation of unmet needs and quality of care? (4-point Likert scale) (**Recommended Item:** learner 3-month follow-up survey)

*Data Skills Online Program and MCHB Perspectives:* N/A

**QUESTION 10: How does Data Skills Online contribute to the MCHB goal of improving the health infrastructure and system?**

*MCH Learner Perspective:*

- Did your participation in Data Skills Online facilitate your ability to submit the SPRANS application electronically? (**Recommended Item:** learner 3-month follow-up survey)

*Data Skills Online Program Perspective:* N/A

*MCHB Project Officer Perspective:*

- In states in which MCH employees have participated in Data Skills Online, have they utilized linked MCH electronic databases in their needs assessments, planning, evaluation, and reporting activities? (MCHB Project Officer questionnaire/interview)

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<sup>6</sup> MCHB is particularly interested in the impact of Data Skills Online on MCH professionals. This subgroup of program participants potentially can be identified through demographic data collected via participants' Data Skills Online registration information.

**QUESTION 11: Was the distance learning design for Data Skills Online a good use of resources?**

*MCH Learner Perspective:* N/A

*Data Skills Online Program Perspective:*

- Please describe the benefits (to your program and MCHB) of implementing the Data Skills Online via distance learning? (Data Skills Online staff questionnaire/interview)
- Please describe the costs (capital and operating) and burden (staff time and resources) of implementing Data Skills Online? (Data Skills Online staff questionnaire/interview)
- Are costs/burdens greater, less than, or about equal to the benefits? Please explain. (Data Skills Online staff questionnaire/interview)
- Have costs/burdens and benefits changed over time? If so, how and why? (Data Skills Online staff questionnaire/interview)
- How do costs compare to the costs of implementing Data Skills Online in a traditional classroom setting? (Data Skills Online staff questionnaire/interview)

*MCHB Project Officer Perspective:*

- Please describe the benefits of implementing the Data Skills Online via distance learning? (MCHB project officer questionnaire/interview)
- Please describe the costs (capital and operating) and burden (staff time and resources) of implementing Data Skills Online? (MCHB project officer questionnaire/interview)
- Are costs/burdens greater, less than, or about equal to the benefits? Please explain. (MCHB Project Officer questionnaire/interview)
- Have costs and benefits changed over time? If so, how and why? (MCHB Project Officer questionnaire/interview)
- How do costs/burdens compare to the costs of implementing Data Skills Online in a traditional classroom setting? (MCHB Project Officer questionnaire/interview)

## **B. Sampling and Data Collection Methods**

Lewin recommends that data be collected from multiple perspectives to answer Level Two and Three evaluation questions. Data Skills Online learners, program staff, and MCHB project officers offer unique and important perspectives that contribute to the overall assessment of program implementation, effectiveness, and outcomes.

Across these perspectives, data will be collected through a variety of methods including online surveys, program databases, and in-person or telephone interviews. Lewin proposes initial pilot-testing to ensure that survey items and interview questions are worded clearly and appropriately, and to verify response time and burden for learners, Data Skills Online staff and MCHB project officers. Every attempt should be made to minimize participant burden. Undue time demands or complicated instructions and items can deter learners from completing the evaluation

instruments. Pilot-testing also can help refine the variables tracked in program databases (and the processes by which they are tracked) to ensure that appropriate data are collected for program monitoring purposes.

The following sections describe sampling and data collection methods that apply to measures administered to learners, Data Skills Online program staff (or individuals affiliated with program design, development or implementation), and MCHB project officers. Exhibits 2 and 3 (included at the end of this Section) summarize sampling and data collection methods across these three perspectives and across the three evaluation levels. Consistent with the grant cycle, the evaluation assumes a three-year grant period, with programs becoming fully operational and stable in the 18<sup>th</sup> month. While Level One evaluation information should be collected from program inception, collection of Level Two and Level Three evaluation data will begin at the 18<sup>th</sup> month.<sup>7</sup> Exhibit 4 presents a timeline of evaluation data collection activities throughout a 36-month grant cycle.

### **Learner Surveys**

The full population of individuals participating in the Data Skills Online program will be asked to complete an online survey at the end of each technical or analytic tool. This survey will build upon the current Data Skills Online three-item, post-tool evaluation survey, which has achieved average response rates of approximately 41% over the past 18 months. From our list of potential process (Level Two) and outcome (Level Three) measures, Lewin has selected 11 priority items to be included in the post-tool survey. Items include measures of program content, teaching methods, technology, delivery strategy, satisfaction, and perceptions of learning.<sup>8</sup> The three Data Skills Online survey items, which address learner reactions, either are incorporated verbatim or modified slightly.

Currently, Data Skills Online evaluators use a single mid-tool survey item to identify individuals who have completed at least half of the tool, and target a random subset of these individuals for a six-month electronically transmitted online follow-up survey. Lewin recommends that follow-up surveys be mailed electronically to *all* individuals who complete a Data Skills Online Tool, three months after tool completion. Follow-up surveys should be mailed three months subsequent to the calendar month in which participants completed the Data Skills Online tool. For example, all individuals who complete the tool in January 2002 will receive (via email) the online follow-up survey the last week in April 2002. Accordingly, assuming the program becomes operational at Month 18, administration of the three-month follow-up survey will begin the end of Month 21. This methodology requires the evaluator to target a greater number of participants on a more regular basis (monthly) for follow-up.

Data Skills Online's current six-month follow-up evaluation response rate is 26%. Increasing the target sample to include all learners who complete a Data Skills Online tool can yield additional respondents. If initial follow-up survey cycles yield low response rates, Lewin recommends attempting to contact a random sample of learners to administer the follow-up survey via telephone, using the survey as a structured interview. If programmatic resources do not allow for

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<sup>7</sup> The evaluation plan and timeline can be adapted for grants that begin the grant period with a pre-developed program and do not require the 18-month program development phase.

<sup>8</sup> See Appendix A for sample post-tool survey.

this approach, however, Lewin recommends that state MCH professionals comprise the target subset of learners, since this population is of particular interest to MCHB.

Building on the current Data Skills Online follow-up survey, Lewin recommends including items designed explicitly to assess the impact of Data Skills Online relative to program and MCHB goals.<sup>9</sup> This information will assist MCHB in evaluating how distance learning approaches to continuing education and professional training contribute to its mission and strategic goals. Relative to the current six-month Data Skills Online follow-up evaluation, the proposed three-month follow-up period provides less opportunity for other learner experiences to confound the effects of and reactions to the Data Skills Online tool, and increases the likelihood of successfully contacting participants. (That is, the contact information they provided during registration is more likely to still be accurate after three months than six months). Furthermore, for most training programs, the three-month evaluation period provides sufficient time for the transference of learning from the training environment to on-the-job behavior.<sup>10</sup> For other training programs, where newly acquired skills are only episodically used, six months may be a more realistic follow-up period to ensure that learning has transferred to the work environment.<sup>11</sup>

### **Data Skills Online Databases and Staff Interviews/Site Visit<sup>12</sup>**

Level Two and Three evaluations rely on database construction to track important process variables as well as interviews with select staff involved in designing tools and providing technical and instructional support to participants.

**Database Development and Maintenance.** Some process measures must be tracked continuously to assess the effectiveness of program implementation. Such measures include learner background characteristics, registration and utilization trends, number and type of requests for technical assistance/instructor support, and utilization of technical assistance webpages, among others.<sup>13</sup> Tracking these measures involves requesting participants to complete demographic data through electronic registration forms, and having Data Skills Online program staff maintain a log of requests (submitted via email and telephone) for technical assistance and instructional support. In addition, it is necessary to track how many learners participate in various Data Skills Online tools, and how many access technical assistance webpages. Currently, Data Skills Online tracks these process variables on an ongoing basis. These data should be maintained in a program database.

Lewin recommends that program staff conduct an initial review three months after implementing the program (i.e., Month 21 of the grant cycle) to ensure that the required data are being tracked accurately. Lewin further proposes that program staff examine the data every six months to monitor the implementation process and provide feedback for program improvement purposes.

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<sup>9</sup> See Appendix B for sample three-month follow-up survey.

<sup>10</sup> Kirkpatrick, D.L., (1994). Evaluating training programs. San Francisco: Berrett-Koehler.

<sup>11</sup> Program developers and evaluators should consider the nature of the skills being taught and the opportunities learners will have to demonstrate use of these skills on the job to determine an appropriate follow-up period.

<sup>12</sup> Written questionnaires can be administered to Data Skills Online staff if resources preclude telephone or in-person interviews.

<sup>13</sup> See Appendix C for a complete list of data elements for program databases.



To calculate post-tool and follow-up response rates, it also is important to track how many participants complete technical/analytic tools. Some programs have course software that allows them to do this automatically, however, others, like Data Skills Online, have more limited software capabilities. The Data Skills Online program currently includes a mid-tool evaluation question asking learners whether they plan to share their learning with co-workers. The underlying purpose of this item is to track how many participants complete at least 50% of any given tool. Lewin recommends maintaining a mid-tool question, but modifying it to reflect its intended purpose of tracking learners (i.e., “Have you completed at least half of “insert name” tool?”). In addition, adding a question at the end of tools asking, “Have you completed this tool?” will enable the program to more accurately track how many participants complete the entire tool.

To ensure that data are both available for evaluation and consistent across grantees, Lewin recommends that MCHB build process evaluation activities into grant requirements and provide grantees with a standard set of required data elements as well as a template for data entry. Standardization in the data collection process can facilitate interpretation and use of the data. If MCHB is unable to standardize the data collection and reporting process, grantees instead can be given a general description of the types of information in which MCHB is interested and the rationale for their collection to encourage grantees to collect and volunteer useful data. Database review and analysis can form the base for quality assurance activities within programs, providing feedback about ways to improve program operations and more effectively implement activities and reach target audiences.

**Staff Interviews and Site Visit.** Staff interviews, including in-person interviews conducted on a site visit, represent another important method of attaining feedback on both process and outcome measures. Potential interviewees include the project director and project coordinator as well as individuals involved in tool design and technical support. Lewin developed separate process and outcome interview protocols based on measures outlined in the preceding section (see Appendix D for sample protocols).

Lewin recommends scheduling interviews to collect process evaluation data six months into the evaluation period (Month 24 of the grant cycle), at which time programs will have been underway for several months. These data should be collected via a site visit, which affords the opportunity for MCHB, Data Skills Online staff, and the program evaluator to discuss the overall evaluation implementation process (e.g., updating program profile data, tracking required data, and maintaining databases). Site visits provide a unique opportunity for Data Skills Online staff and MCHB to assess the barriers and facilitators for implementing the evaluation design, and for grantees to receive technical assistance.

Lewin proposes that the Data Skills Online staff process evaluations occur every six months, with the 24- and 36-month data collection aligning with MCHB-required annual and final reports, respectively, and the 30-month interview serving as an internal quality improvement mechanism. Telephone interviews will be conducted at Months 30 and 36 of the project period. While response rates are typically higher for in-person interviews (85-95%), as compared to telephone interviews (70-85%), they are more labor intensive and costly. If program staff involved in the initial design and development process are no longer working at Data Skills Online, every effort should be made to contact them as needed.

Interviews to collect outcomes evaluation data – concerning overall program quality, organizational capacity, institutionalization of Data Skills Online at UNC’s School of Public Health, and program sustainability and replicability – can be scheduled for the end of the evaluation period (i.e., Month 18 of the evaluation period, which is Month 36 of the grant cycle).

### **MCHB Project Officer Interviews**

Interviews with MCHB project officers are very similar to program staff interviews, but are significantly shorter (see Appendix E for a sample MCHB interview protocol). In terms of process measures, MCHB staff can provide a unique perspective on whether program implementation aligns with initial program design. In addition, MCHB staff can provide specific insight into whether distance learning programs, like Data Skills Online, contribute to MCHB strategic goals targeting MCH database linkage, and cost-effectiveness. As with program staff interviews, Lewin recommends scheduling an informal process interview (one question and short discussion) six months (i.e., Month 24 of the grant period) into the evaluation period, and an outcomes evaluation interview at the end of the 18-month evaluation period.

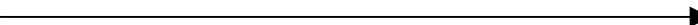
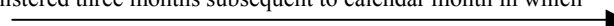
**Exhibit 2: Sampling Plan for Each Evaluation Level**

	Sampling Methods: Level One	Sampling Methods: Levels Two and Three			
		Survey		Database	Interviews/Site Visit
		Post-tool	Follow-up		
Sample	Each individual program	All learners	All learners	All learners	<ul style="list-style-type: none"> <li>• Data Skills Online staff involved in tool design, and providing technical or instructional support</li> <li>• MCHB project officer</li> </ul>

**Exhibit 3: Data Collection Methods for Each Evaluation Level**

Data Collection Perspective	Data Collection Methods: Level One	Data Collection Methods: Levels Two and Three			
		Survey		Database	Interviews
		Post-tool	Follow-up		
Learner	N/A	Complete post tool survey immediately following completion of Data Skills Online tool	Complete follow-up survey (for each tool completed) starting Month 4 of program, and every month thereafter.	N/A	N/A
Program	<ul style="list-style-type: none"> <li>Complete program profile</li> <li>Complete and submit profile updates</li> </ul>	N/A	N/A	Generate descriptive statistics (learner characteristics; participation trends; technical/instructor support requests)	Process and outcome interviews with staff involved in tool design, technical/ instructional support
MCHB	Verify information contained in program profile with grantees	N/A	N/A		Process and outcome interviews with MCHB project officer

**Exhibit 4: Data Collection Timeline (36-Month Grant Period)**

	MONTH OF GRANT PERIOD DURING WHICH DATA ARE COLLECTED						
Data Collection Methods	0 to 12	12 to 18	18 <sup>14</sup>	21	24	30	36
<b>LEVEL ONE</b>							
Program Profile	<ul style="list-style-type: none"> <li>Develop program profile (0 - 3 months)</li> <li>Internal profile update with program staff (6 months)</li> </ul>	External profile update: submit update with annual report (12 months)	Internal profile update with program staff		External profile update: submit update with annual report to MCHB	Internal profile update with program staff	External profile update: submit update with annual report to MCHB
<b>LEVELS TWO AND THREE</b>							
Post-tool survey			Post-tool survey administration (ongoing) 				
Follow-up survey				Follow-up surveys administered three months subsequent to calendar month in which learners completed tool 			
Database	<ul style="list-style-type: none"> <li>Review variables identified by HRSA for tracking</li> <li>Begin tracking program process variables</li> </ul>		Begin tracking learner process variables	Internal review of data being tracked to ensure database is operational and required information is being collected	<ul style="list-style-type: none"> <li>Generate statistics for data collected during six-month period.</li> <li>Submit data with annual report</li> </ul>	Internal monitoring: review data and generate statistics for data collected during six-month period.	Submit overall program statistics with final report
Interviews and Site Visit					Interviews/Site Visit with Data Skills Online and MCHB staff (Process evaluation)	Interviews with Data Skills Online staff (Process evaluation)	Interviews with Data Skills Online and MCHB staff (Process and Outcomes evaluations)

<sup>14</sup> Consistent with the grant cycle, Lewin assumes a three-year evaluation, with programs becoming fully operational and stable in the 18<sup>th</sup> month, at which point Level Two and Three evaluations would begin.

## **IV. DATA ANALYSIS AND REPORTING PLAN**

Analysis involves both qualitative and quantitative data across the three evaluation levels. For qualitative data, information from the various data sources – program profiles, interviews with Data Skills Online and MCHB staff, and open-ended learner survey responses – can be coded for major themes, then compared across data sources to examine commonalities and differences and to derive explanations for findings. Quantitative data from secondary data requests and close-ended survey responses can be analyzed (e.g., using Excel) to generate descriptive statistics examining process- and impact-related outcomes. Furthermore, if learner data (e.g., registration information, and mid-tool, post-tool, and follow-up survey data) can be linked, cross-tabulations can be performed to determine relationships among learner characteristics, process variables, and outcome variables. As appropriate, t-tests and chi-square tests can be conducted to test for the statistical significance of differences identified between cohorts of participants.<sup>15</sup> Bivariate, logistic and/or linear regression analyses may be appropriate, depending on the possibility of linking data and on the types of variables included in the various components of the evaluation plan.

Lewin describes data analysis and reporting activities within the context of an external evaluation that is either funded by the grantee as part of their grant award or supported directly by MCHB. Evaluators could provide results to programs to submit as part of their required progress, annual, and final MCHB reports or send results directly to MCHB at the same intervals.

### **A. Level One: Program Assessment/Profile**

In the Level One sampling and data collection section, Lewin proposed that MCHB require grantees to address program profile questions during the grant-writing phase, submitting written responses with their grant applications. Lewin recommends that program evaluators review profile questions six months into program design and development. The six-month data can inform quality improvement efforts during the design phase. Thereafter, profile data should be updated and resubmitted to MCHB as a component of grantee annual progress reports. MCHB should provide guidance clearly explaining the purpose of and need for collection of profile data and provide an attachment containing profile questions to be completed by the grantee.

Ultimately, analysis of profile data will allow MCHB to track across its various distance learning initiatives and inform subsequent grant initiatives. MCHB can develop a classification scheme – based on the measures incorporated in the assessment profile – for its distance learning programs. In addition, data can be incorporated and updated in an MCHB-wide database that facilitates comparisons across MCHB-supported programs.

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<sup>15</sup> The proposed data analysis plan is a general plan designed to highlight basic data analytic approaches that can be adopted. It is premature to develop a detailed evaluation plan describing the statistics to be employed without feedback from HRSA and/or MCHB on the proposed measures and evaluation tools.

## **B. Level Two: Process Evaluation**

Process evaluation measures are collected through the learner post-tool survey, secondary data requests from Data Skills Online databases, and interviews with program and MCHB staff. As indicated previously, process data can be collected at the time that the Level One profile data is collected from Data Skills Online staff, ideally beginning six months after the award of the grant and continuing every six months thereafter until the end of the grant period.

Lewin recommends that process evaluation data be reported to MCHB annually as a component of the grantee's annual progress report, and in the grantee's final report. The reports should include descriptive statistics from the quantitative process measures administered via the learner post-survey tool, secondary data requests, and content-coded and analyzed qualitative data collected through interviews with program and MCHB staff. Types of process data reported should include response rates, participation trends, and a thematic discussion that synthesizes the qualitative process evaluation data collected from learners, Data Skills Online designers/developers/implementers and MCHB staff. All marketing and promotional efforts or modifications to program design or implementation should be documented during the process evaluation interviews to provide the context for interpreting the Data Skills Online evaluation data. Submitting process evaluation data at several points during the evaluation period provides insight into program redesign decisions, challenges confronted by program staff, and implementation issues. These data can inform MCHB's development of subsequent grant initiatives that incorporate distance learning components. The program evaluator should collaborate with MCHB to ensure that grantees are given adequate guidance on how to incorporate process evaluation data in annual reports. For example, grantees should be given guidance on how to calculate post-tool and follow-up survey response rates to ensure consistency and comparability across programs.

In addition, Lewin recommends that Data Skills Online program staff review data every six months for continuous quality improvement purposes at the program level. For example, program staff can identify participation trends to monitor the extent to which the program is reaching its intended target audience, and make appropriate changes to promotional and marketing strategies to address program deficiencies.

## **C. Level Three: Outcomes Evaluation**

Lewin proposes that outcome evaluation data accompany process data in annual and final reports submitted to MCHB (i.e., the Month 24 annual and Month 36 final reports). Descriptive analysis of quantitative data collected from learners via the post-tool and three-month follow-up surveys will be incorporated into the annual report submitted to MCHB. The data include assessments of increases in comfort and confidence, transference of learning from training to work environments, and the extent to which participants intend to and actually do recommend the tools to their colleagues. With linked data, the evaluation permits assessment of relationships between learner demographics, reactions, learning and behavior change. If data are not linked, descriptive statistics should facilitate identification of trends and patterns in the data. In addition, the report should include descriptive analysis of the outcome evaluation data retrieved from program databases via secondary data requests as well as the qualitative findings from interviews with program and MCHB staff.

## **V. RELIABILITY AND VALIDITY CONCERNS**

Reliability and validity issues should be considered within the context of the overall evaluation plan. Reliability concerns specific to the proposed plan relate to whether the measures are free from random error (e.g., the learner makes mistakes responding to survey questions, the learner or program staff misunderstands questions). One way to address reliability concerns is to pre-test survey instruments or interview questions prior to fielding them. In order to tailor evaluation surveys and questionnaires to address MCHB interests, Lewin developed several original (untested) items for post-tool and follow-up evaluation surveys. Conducting tests of internal consistency can help address reliability concerns. Over time, if certain items or combinations of items appear to have poor reliability, they could be dropped or changed until satisfactory internal consistency is achieved.

In terms of external validity (i.e., generalizability), the target audience for Data Skills Online is public health professionals, particularly those working on maternal and child health issues. Lewin expects, therefore, that learner results can be generalized to other public health and MCH professionals. However, low follow-up response rates or data submitted by only a cohort of participants (e.g., the evaluation data are limited primarily to state employees, or professionals from a single geographic region) would restrict the generalizability of learner results to the broader pool of public health and MCH professionals. In addition, public health professionals who choose to register for online training courses may be different from other public health professionals. They may be more self-directed, more likely to be computer literate (although one goal of Data Skills Online is to increase comfort with technology) and more likely to have the necessary computer equipment. This evaluation plan does not propose statistical testing for external validity. It does encourage evaluators to review characteristics of the population relative to the follow up sample.

Program-level results should be generalizable to other MCH-supported training programs that use similar distance learning technologies (i.e., Internet) and delivery strategies (e.g., menu format, self-paced). As MCHB begins to categorize distance learning programs according to design characteristics, they will be able to conduct cross-program analyses of effective distance learning program characteristics.

In terms of internal validity – or the degree to which learner outcomes can be attributed to involvement in Data Skills Online – there are a few general threats to consider. Some learners may get exposed to technical or analytic skills training outside of Data Skills Online, such as through attending work-related conferences or seminars. Consequently, it would be difficult to attribute changes – in their knowledge or skills, for example – to participation in Data Skills Online. In addition, the threat of selection specifically affects the interpretability of follow-up data. People who cannot be accessed between post-tool and follow-up evaluations may be characteristically different from those who can be reached. One way of controlling for this threat is to prepare an assertive data collection plan for follow-up evaluations and request that learners submit contact information beyond electronic addresses (i.e., telephone, home address) when they register for tools.

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

In seeking to better understand the role that distance learning approaches play in fulfilling its mission and programmatic goals, HRSA contracted with the Lewin Group to (1) develop a comprehensive, multi-level evaluation framework and (2) demonstrate how this framework could be applied to a specific MCHB-funded training program. Data Skills Online, a web-based training program designed to help public health professionals develop technical and analytic skills, was selected as the test case.

The evaluation plan consists of three levels. Depending on the evaluation intent and resources available, HRSA could choose to implement any of the three levels as a stand-alone evaluation or implement any combination of the three levels. Level One involves compiling a comprehensive profile of program design characteristics, while Level Two is a process evaluation aimed at understanding how distance learning programs are implemented from learner and program perspectives. The third evaluation level is outcome-focused and examines the effectiveness of distance learning continuing education and training programs in terms of producing changes in the learner, program, sponsoring Bureau or Office, and HRSA.

In terms of data collection methodology, Lewin recommends that data be collected from as many different perspectives as possible, including learners, program staff, and sponsoring Bureau, Office, or HRSA project officers. Across these varied perspectives, Lewin also recommends that data be collected through a variety of methods including online surveys, program databases, interviews (in-person and telephone), and a Bureau, Office, or HRSA site visit six months into an 18-month evaluation period.

Lewin further recommends that HRSA incorporate the collection of Level One profile information into the RFP process by requesting that grantees complete and submit a profile worksheet to supplement their grant applications. In addition, to ensure that adequate data are available for Levels Two and Three process and outcome evaluations, Lewin recommends that HRSA build process evaluation activities into grant requirements and provide grantees with a standard set of required data elements as well as a template for data entry.

Lewin described reporting activities within the context of an external evaluation that is either funded by the grantee as part of their grant award or supported directly by HRSA. To the extent possible, evaluation reporting activities should be integrated with existing requirements, including progress, annual, and final reports to the Bureau, Office, or HRSA. Ideally, results at all three evaluation levels (e.g., program profile, process, and outcome evaluations) could form the base of program quality assurance activities, providing feedback about ways to improve program operations and more effectively implement activities and reach target audiences.

Although this report tailors the evaluation plan to fit the characteristics of Data Skills Online, it is important to emphasize that the overall evaluation framework can be extended to all HRSA-supported continuing education and training programs with distance learning components.<sup>16</sup> For example, Lewin developed an extensive selection of potential items to include in electronic

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<sup>16</sup> Lewin developed and submitted to HRSA a separate approach for evaluating HRSA-supported information dissemination activities that incorporate distance learning components.



surveys, secondary data requests, and interview protocols that can be individually tailored to assess the distance learning objectives of different training programs. In addition, HRSA-specific outcomes will differ across programs, depending upon their unique objectives.

**APPENDIX A**  
**POST-TOOL EVALUATION SURVEY**

### **Post-Tool Evaluation Survey**

1. Why did you choose web-learning over a traditional learning environment?
2. To what extent was program content at the appropriate skill level for you?
  - a. Well below my skill level
  - b. Slightly below my skill level
  - c. At my skill level
  - d. Slightly above my skill level
  - e. Well above my skill level
3. Did you review on-line tool descriptions? \_\_\_\_Yes \_\_\_\_No  
Why or why not?
4. To what extent did the information presented in this training align with the description of Data Skills Online tools that you reviewed?
  - a. Not applicable – I did not review the descriptions
  - b. Not at all
  - c. To a small extent
  - d. To a moderate extent
  - e. To a great extent
5. How effective were the tool's activities, examples, exercises, and/or demos in helping you learn?
  - a. Not at all effective
  - b. Somewhat effective
  - c. Mostly effective
  - d. Completely effective
6. Did having this technical/analytical training tool available on the Internet provide you with a training opportunity you might not have participated in otherwise? \_\_\_\_Yes \_\_\_\_No  
Why or Why not?
7. How satisfied were you with being able to work independently, without live interaction with other participants or the instructor?
  - a. Not at all satisfied
  - b. Somewhat satisfied
  - c. Mostly satisfied
  - d. Completely satisfied
8. Has this technical/analytic tool increased your level of comfort in using, interpreting, analyzing or reporting MCH data? \_\_\_\_Yes \_\_\_\_No  
Why or Why not?

9. To what extent do you feel that participation in the course helped develop or enhance your technical/analytical skills? (4-point Likert scale)
- a. Not at all
  - b. To a small extent
  - c. To a moderate extent
  - d. To a great extent
10. How likely are you to recommend this technical/analytic tool to a colleague?
- a. Not at all likely
  - b. Slightly likely
  - c. Somewhat likely
  - d. Completely likely
11. During the next 12 months, how do you plan to use the skills taught on your job?
- ☐ To use on-line data sources.
  - ☐ To assess needs.
  - ☐ To prepare grant proposals.
  - ☐ To enhance quality of primary data I collect.
  - ☐ To prepare reports or presentations.
  - ☐ To enhance my comprehension of professional journal articles.
  - ☐ To join more professional list serves.
  - ☐ Other, please describe:
  - ☐ I don't plan to use skills taught in this tool on my job.

**APPENDIX B**  
**THREE-MONTH FOLLOW-UP SURVEY**

### **Three-Month Follow-up Survey**

1. Three months ago you completed the “(insert tool name)” tool from Data Skills Online. How have you used the skills that you learned within your work environment? Please mark all that apply.
  - ☐ Use more online data sources
  - ☐ Conducted a needs assessment
  - ☐ Prepared a grant proposal
  - ☐ Implemented a program evaluation
  - ☐ Enhanced the quality of primary data that I collect
  - ☐ Prepared reports or presentations
  - ☐ Enhanced my ability to comprehend professional journals
  - ☐ Joined more professional listservs<sup>399</sup>
  - ☐ Other:
  - ☐ I have not had an opportunity to use the skills in my job, but expect I will in the future
  - ☐ I do not expect to use the skills in my job.
2. To what extent do you feel your participation in Data Skills Online has enhanced state-level capacity for utilizing data and information for the analysis, assessment, monitoring, and evaluation of unmet needs and quality of care?
  - a. Not at all
  - b. To a small extent
  - c. To a moderate extent
  - d. To a great extent
3. Did your participation in Data Skills Online facilitate your ability to submit the SPRANS application electronically?  
\_\_\_ Yes    \_\_\_ No                    \_\_\_ Not applicable  
Why or Why not?
4. How many Data Skills Online tools have you completed over the past three months?
5. Have you recommended the Data Skills Online program to a colleague/friend?  
\_\_\_ Yes    \_\_\_ No                    Why or Why not?

**APPENDIX C**  
**SECONDARY DATA REQUESTS FROM DATA SKILLS ONLINE**  
**DATABASES**

## **Secondary Data Requests From Data Skills Online Databases**

### *Variables to track:*

1. Number and type of phone/email requests posed during a six-month interval, categorized by topic area (e.g., interpreting tool descriptions; program instructions and content; accessing Internet or Data Skills Online tools; or navigating and completing tools).
2. Number of hits to the on-line Technical Support webpages
3. Compilation of descriptive statistics on learner professional, organizational, and geographical background.
4. Percent of target audience reached by different categories.
5. Type and number of participants responding to a mid-tool item, indicating completion of at least half of the tool.
6. Type and number of participants responding to an end-of-tool item, indicating completion of the entire tool.
7. Total number of participants over time, by tool, as assessed via the end-of-tool completion item.
8. Type of participants over time, by tool, as assessed via the end-of-tool completion item and participants' demographic information (from registration form).
9. Percentage of learners who complete a Data Skills Online tool (as determined via the end-of-tool completion item) out of the total number who register.
10. Number of tools completed period per participant in a three-month period.
11. Scores on quizzes and activities completed during the tools.



**APPENDIX D**  
**INTERVIEW PROTOCOL FOR DATA SKILLS ONLINE STAFF**

## **Interview Protocol for Data Skills Online Staff**

### **PROCESS EVALUATION INTERVIEW**

1. Based on analysis of phone/email requests for support, what components of the program do you feel need improvement? Please explain.
2. Please rate the adequacy of the following support services:

#### **Technical support (via email or voicemail)**

- a. Not at all adequate
- b. Slightly adequate
- c. Moderately adequate
- d. Completely adequate

#### **Instructor support (via email or voicemail)**

- a. Not at all adequate
- b. Slightly adequate
- c. Moderately adequate
- d. Completely adequate

#### **Online Technical Support Webpage**

- a. Not at all adequate
- b. Slightly adequate
- c. Moderately adequate
- d. Completely adequate

#### **Non-staff resources (e.g., WebCT, other software or equipment)**

- a. Not at all adequate
- b. Slightly adequate
- c. Moderately adequate
- d. Completely adequate

3. To what extent did program implementation align with initial program design?
  - a. Not at all
  - b. To a small extent
  - c. To a moderate extent
  - d. To a good extent
4. What factors facilitated reaching the target audience? (e.g., specific promotional efforts)
5. What factors got in the way of reaching the target audience?
6. What factors facilitated program implementation?
7. What factors got in the way of program implementation?

## **OUTCOMES EVALUATION INTERVIEW**

1. Since inception of Data Skills Online, has UNC's School of Public Health established any new collaborations or relationships with other departments or organizations that did not exist previously? ☐ Yes ☐ No If yes, please describe.
2. Has Data Skills Online in part or as a whole been adopted by UNC's School of Public Health? ☐ Yes ☐ No Why or Why not?
3. Has UNC's School of Public Health made changes to its policies that were influenced by Data Skills Online? ☐ Yes ☐ No If yes, please describe.
4. Does Data Skills Online have a plan for financial sustainability (e.g., additional funding secured, contractual agreements) after the MCHB funding period? ☐ Yes ☐ No  
If yes, please describe.
5. Is there evidence of Data Skills Online replication? ☐ Yes ☐ No If yes, please describe.
6. Does Data Skills Online have a plan for replication? ☐ Yes ☐ No  
If yes, please describe.
7. Was there an MCHB expectation for replication? ☐ Yes ☐ No  
If yes, please describe.
8. Please describe the benefits (to your programs and MCHB) of implementing the Data Skills Online tools via distance learning?
9. Please describe the costs (capital and operating) and burden (staff time and resources) of implementing Data Skills Online?
10. Are costs/burdens greater, less than, or about equal to the benefits? Please explain.
11. Have costs/burdens and benefits changed over time? If yes, how and why?
12. How do costs compare to the costs of implementing Data Skills Online in a traditional classroom setting?

**APPENDIX E**  
**INTERVIEW PROTOCOL FOR**  
**MCHB PROJECT OFFICER**

## **Interview Protocol for MCHB Project Officers**

### ***Process Interview:***

1. To what extent did program implementation align with initial program design (as described in the grantee application). Please describe discrepancies.
  - a. Not at all
  - b. To a small extent
  - c. To a moderate extent
  - d. To a great extent

### ***Outcome Interview:***

1. In states in which MCH employees have participated in Data Skills Online, have they utilized linked MCH electronic databases in their needs assessments, planning, evaluation, and reporting activities? \_\_\_Yes \_\_\_No  
Why or Why not?
2. Please describe the benefits of implementing the Data Skills Online via distance learning?
3. Please describe the costs (capital and operating) and burden (staff time and resources) of implementing Data Skills Online?
4. Are costs/burdens greater, less than, or about equal to the benefits? Please explain.
5. Have costs/burdens and benefits changed over time? If yes, how and why?
6. How do costs compare to the costs of implementing Data Skills Online in a traditional classroom setting?